AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Claims 1-38 (canceled).

39. (new): An illumination system for a microlithography projection exposure apparatus for illuminating an illumination field with light from a primary light source, comprising:

a light distribution device receiving light from the primary light source and generating a predetermined, two-dimensional intensity distribution from the light from the primary light source in a first surface of the illumination system;

a first raster arrangement comprising first raster elements receiving the spatial, two-dimensional intensity distribution and generating a raster arrangement of secondary light sources;

a second raster arrangement comprising second raster elements receiving light from the secondary light sources and at least partially superimposing light from the secondary light sources in the illumination field;

the light distribution device comprising at least one diffractive optical element generating an angular distribution whose far field has separate or contiguous luminous zones which are coordinated in terms of form and size with the form and size of the first raster elements of the first raster arrangement.

40. (new): The illumination system as claimed in claim 39, wherein the diffractive optical element sets a two-dimensional intensity distribution in the first surface such that all first raster elements associated with a predetermined exit light distribution are at least essentially completely illuminated by the intensity distribution, while first raster elements which do not contribute to the exit light distribution remain at least essentially unilluminated.

41. (new): The illumination system as claimed in claim 39, wherein the diffractive optical element is configured such that the luminous zones generate at least one of an at least approximately circular, at least approximately annular, or at least approximately dipole or multipole intensity distribution with a rastering corresponding to a form and size of the first raster elements onto the raster elements of the first plane.

42. (new): The illumination system as claimed in claim 39, wherein no zoom device is arranged between the primary light source and the first raster arrangement.

43. (new): The illumination system as claimed in claim 39, wherein no axicon system is arranged between the primary light source and the first raster arrangement.

44. (new): The illumination system as claimed in claim 39, wherein no variably adjustable optical component is arranged between the primary light source and the first raster arrangement.

45. (new): The illumination system as claimed in claim 39, wherein the light distribution device comprises a changeover device for exchanging a first diffractive optical element generating a first, two-dimensional intensity distribution for at least one second diffractive optical element generating a second, two-dimensional intensity distribution different from the first intensity distribution.

46. (new): The illumination system as claimed in claim 39, wherein the diffractive optical element has two or more differently structured partial regions which configured for introduction into the beam path of the illumination system for generating a number of different, two-dimensional light distributions corresponding to the number of partial regions.

47. (new): The illumination system as claimed in claim 39, wherein the diffractive optical element is configured such that at least one luminous zone completely illuminates at least one raster element.

48. (new): The illumination system as claimed in claim 39, wherein the diffractive optical element is configured such that at least one luminous zone illuminates with maximum intensity at least one raster element apart from a narrow edge region.

49. (new): The illumination system as claimed in claim 39, wherein the primary light source is a laser having a divergence D_L in at least one plane containing the light propagation direction of the light, wherein a maximum divergence of the diffractive optical element in the plane is D_{Max}, and wherein the number n of the raster elements of the first raster arrangement, for generating a homogenizing effect, is predetermined such that a defined ratio (effective transmittance T) of the proportion of radiation impinging on the first raster element with flat top intensity to the total radiation impinging on the first raster element is not undershot.

50. (new): The illumination system as claimed in claim 49, wherein the effective transmittance T is greater than 70%.

51. (new): The illumination system as claimed in claim 39, wherein the primary light source is a laser having a divergence of between 0.5 and 1 mrad in at least one plane containing the light propagation direction of the light, wherein the maximum divergence of the diffractive element in the plane is 30 mrad, and wherein the number of raster elements of the first raster arrangement in the plane lies between 10 and 22.

52. (new): The illumination system as claimed in claim 39, wherein the diffractive optical element is embodied as a computer-generated hologram.

53. (new): The illumination system as claimed in claim 39, wherein the raster elements of at least one of the first raster arrangement and the second raster arrangement are embodied as microlenses.

54. (new): The illumination system as claimed in claim 39, wherein a shading diaphragm generating a sharp edge of the intensity distribution is provided in a vicinity of the illumination surface or in a vicinity of a conjugate plane of the illumination surface.

55. (new): The illumination system as claimed in claim 39, wherein at least one Fourier lens arrangement is arranged between the diffractive optical element and the first raster arrangement.

56. (new): A method for producing at least one of semiconductor components and other finely structured devices, comprising:

illuminating a reticle arranged in an object plane of a projection objective with light from a primary light source with an illumination system embodied as claimed in claim 39; and

generating an image of the reticle on a light-sensitive substrate;

wherein, for illuminating the reticle, the diffractive optical element generates a two-dimensional intensity distribution formed as luminous zones on the first surface of the illumination system, a spatial distribution of which corresponds at least essentially to the form of a predetermined exit light distribution.

57. (new): The method as claimed in claim 56, further comprising changing over illumination modes of the illumination system exclusively by at least one of exchanging the diffractive optical element and introducing differently structured partial regions of the diffractive optical element into the beam path of the illumination system.